ANIMAL EXPOSURE SURVEILLANCE PROGRAM

Medical Support for Workers with Animal Contact

I. Purpose: The purpose of the Animal Exposure Surveillance Program (AESP) is to provide:

- A. Relevant health and safety information related to the use and care of animals.
- B. Occupationally indicated immunizations.
- C. Clinical evaluation and treatment for individuals with animal related injuries or illnesses.

II. Relevant Occupational Medical Service (OMS) Procedure Manual Sections

- A. Injuries Involving Nonhuman Primate Body Fluids. Chapter III Section 10
- B. Laboratory Animal Allergies. Chapter III Section 13
- C. Occupational Allergy Clinic. Chapter III Section 18
- D. Occupational Injuries and Illnesses. Chapter III Section 19
- E. Pre-placement Medical Evaluation. Chapter III Section 23
- F. Rabies Immunization. Chapter III Section 24
- G. Serum Storage Program. Chapter III Section 28
- H. Tetanus-diphtheria Immunization. Chapter III Section 29
- I. Wound Care Guidelines. Chapter III Section 35
- J. Retrovirus Exposure Surveillance Program (RESP). Chapter IV Section 7
- K. Tuberculosis Surveillance Program. Chapter IV Section 8
- L. Viral Hepatitis Surveillance Program. Chapter IV Section 9

III. Attachments

- A. Medical Evaluation Form (NIH 2775). Attachment I
- B. Allergies to Laboratory Animals. Attachment II
- C. Health Concerns Associated with Aquatic Species Contact. Attachment III
- D. Health Concerns Associated with Rabbit/Rodent (Small Animal) Contact. Attachment IV
- E. Health Concerns Associated with Nonhuman Primate Contact. Attachment V
- F. Health Concerns Associated with Nonhuman Primate Tissue Work. Attachment VI
- G. Animal Exposure Program Enrollment Outline. Attachment VII

Occupational Medical Service, DOHS
National Institutes of Health
06/05

IV. Eligibility

A. Federal employees at the NIH are required to participate in this program if they have duties that:
   1. Have direct contact or are involved in the direct care of live animals, including small or large animals or nonhuman primates (NHP).
   2. Are within the "air space" of the NHP and breathing their air.
   3. Work with non-fixed NHP tissue including blood.

B. The minimum features of this program that an employee must receive to be certified as participating are listed in Section XII.

C. Contract employees, or employees of non-federal organizations, are eligible only for emergency medical care (e.g., evaluation and treatment of occupational injuries.)

V. Identification and Enrollment

A. Supervisors identify any potential workplace health hazards including contact with research animals as part of the pre-placement medical evaluation process. OMS healthcare providers enroll position applicants in the program during the preplacement medical evaluation.

B. Supervisors may also request that a current worker's OMS clinical record be reviewed to determine whether the employee has already received the mandatory services for enrollment in the AESP (see Section XII).

C. OMS healthcare providers review an employee's clinical record when a worker reports an occupational injury or illness involving a research animal. If the individual is not already enrolled in the program, the appropriate services are provided and the healthcare provider requests that a health and safety specialist investigate the occurrence.

D. At the completion of the enrollment, the OMS healthcare provider completes the AESP Medical Evaluation form (Attachment I) documenting the event.
   1. The healthcare provider instructs the worker to transmit the top page of the four-page form to the supervisor and retain the last page for his/her records.
   2. The OMS healthcare provider forwards the second page of the form to the relevant IC Animal Program Director (APD) and files the third page in the employee's clinical record.

E. If the enrollment occurs as a result of the supervisor's request for a review of the employee's OMS clinical record, the AESP Medical Evaluation form is mailed to the employee with copies of relevant educational materials.

VI. Program Organization

A. The AESP is subdivided into four broad categories:
1. Small animals: fish, amphibians, birds, rodents, rabbits, etc., (see Sections VII and XI).
2. Large animals: cats, dogs, sheep, cattle, pigs, etc., (see Sections VII, VIII, and XI).
3. Nonhuman primates: marmosets, monkeys, apes (see Sections VII, IX, and XI)
4. Nonhuman primate tissues. (see Sections VII, X, and XI)

VII. Services Offered to all AESP Participants

A. A preplacement medical evaluation that includes an occupational medical history, a tuberculin skin test (PPD), appropriate immunizations and blood work, animal allergy counseling, safety and health counseling, and enrollment in other applicable medical surveillance programs. A physical exam is almost never necessary.
1. The occupational medical history includes a review of:
a. The functional demands and environmental factors associated with the proposed position.
b. The type of animal (s) contacted.
c. Other potential work-site health hazards.
d. The individual's medical history.
2. The participant is counseled regarding:
a. The importance of observing Universal Precautions and the proper protective equipment.
b. The availability of medical evaluation and treatment in OMS for occupational injuries and illnesses, including allergies (see Section VII.C.3 below).
c. The participant is provided information and handouts regarding allergic reactions to laboratory animals (Attachment II) and relevant zoonoses based upon the animals used at the worksite (Attachments III, IV, V, and VI).
3. If the employee is expected to work with nonhuman primates, a PPD is administered, unless there is a history of a prior positive test. A PPD is also offered to individuals working with small or large animals or nonhuman primate tissues.
4. A chest radiograph is required, if the participant:
a. Offers a history of a prior positive PPD and cannot provide documentation of a normal chest radiograph two years or more following the test.

b. Is discovered to have a positive tuberculin test reaction. See the OMS Tuberculosis Surveillance Program for additional details.

5. The participant is offered a booster dose of tetanus and diphtheria (Td) toxoid, if ten or more years have elapsed since the employee's last Td booster dose.

B. Serum storage. AESP participants are encouraged to donate 7.5 ml. of blood so that the serum may be stored at -20°C for their future reference. Reference the OMS Serum Storage Program for additional details.

C. Medical evaluation for treatment of work related injuries and illnesses. Occupational injuries and illnesses are handled in accordance with the related OMS procedure.

1. Injuries
   a. Wound evaluation and treatment are performed in accordance with the OMS Wound Care Guidelines.
   b. Injuries involving body fluids from nonhuman primates are addressed in Section IX C and D and in the OMS procedure for Injuries Involving Nonhuman Primate Body Fluids.
   c. When the injury involves either a percutaneous or mucous membrane exposure to animal blood or other body fluid, 7.5 ml. of blood is obtained from the injured employee. The serum from this blood sample is stored for possible future reference.
2. Illnesses and infections
   a. Many of the agents responsible for infections in laboratory animals are capable of infecting humans. Several infectious agents are covered in this surveillance protocol, but many are not.
   b. Employees are counseled by the OMS practitioner during the enrollment evaluation to report health complaints that they suspect may be related to the animals in their work area.
3. Illnesses-allergies
   a. Employees at risk for developing work-related allergies include those with a history of preexisting allergies (especially to household pets), asthma, seasonal rhinitis or eczema.
   b. Employees are counseled regarding the prevention of work-related allergies and provided a handout (Attachment II) that describes: the risk for developing allergic reactions to laboratory animal proteins; how to avoid exposure to potential allergens; the physical signs and symptoms suggestive of an allergic reaction; and

instructions that they should promptly report related concerns to OMS for evaluation. See the OMS Laboratory Animal Allergy procedure and Occupational Allergy Clinic procedures for additional information.

VIII. Large Animal Contact. A participant with large animal contact may receive the following services, in addition to those listed in Section VII.

A. Rabies immunization
   1. Rabies immunization is provided to employees who:
      a. Work with the rabies virus.
      b. Have direct contact with quarantined animals potentially infected with rabies.
      c. Work with potentially infected animal body organs or perform post mortem examinations on selected animals with a history of poorly defined neurological disorders.
      d. Capture or destroy wild animals on campus.
      e. Inspect facilities where the rabies virus is used.
   2. Immunization is performed as outlined in the Rabies Immunization section of the OMS procedure manual.

B. Serologic testing for toxoplasmosis
   1. A toxoplasmosis antibody titer is obtained for immunosuppressed employees and any female employee of childbearing capacity who anticipates occupational exposure to cats or their feces. A titer of greater than, or equal to, 1:16 by immunofluroscent testing is interpreted as protective.
   2. Immunocompromised employees and females of childbearing capacity who lack immunity to toxoplasmosis and plan to work with cats are informed of their susceptibility and are provided additional educational information.
   3. The supervisor is advised to arrange a job reassignment for immunosuppressed employees and other susceptible employees for the duration of the pregnancy. When this is not possible, consultation with a health and safety specialist is requested to identify other mechanisms to protect the employee.

C. Q Fever counseling and treatment
   1. Employees at risk of exposure to Q fever include those who:
      a. Have direct involvement with the organism *Coxiella burnettii* in a research capacity.
      b. Handle or use products of parturition or material contaminated by them (e.g., placenta, amniotic fluid, blood or bedding) from sheep, goats, cattle or cats.
   2. At the time of the pre-placement medical evaluation, the participant is evaluated for his/her likelihood of developing

chronic sequelae should they acquire Q fever. Employees with valvular or congenital heart defects, vascular grafts and those who are immunosuppressed are advised of the potential risks involved and medical clearance for duty will be determined by an OMS physician on a case-by-case basis.

3. Characteristics of infection with <u>*Coxiella burnettii*</u>
   a. The incubation period averages 20 days, with a range of 14-39 days.
   b. Signs and symptoms of acute infection include the sudden onset of severe headache, fever of 104° F or greater, chills and myalgias. The patient may present with pneumonitis or clinical hepatitis.
   c. Treatment is initiated as soon as diagnosis is suspected.
   d. Serologic confirmation of the diagnosis is accomplished three months later using enzyme immunoassay (EIA) testing of serum samples obtained at the time of initial report, at two weeks and every 30 days from that day for three months.
   e. The employee's work status depends upon the severity of symptoms. Human-to-human transmission of Q fever has not been documented in a work setting.

IX. Nonhuman Primate Contact. Employees working with or caring for nonhuman primates and those employees performing necropsies on nonhuman primates are offered the following services, in addition to those listed in Section VII.

A. Tuberculosis screening
   1. Tuberculosis is a zoonotic disease that is difficult to detect in nonhuman primates and spreads rapidly in nonhuman primate colonies. Because there is no effective treatment for this infection in nonhuman primates, infected animals are euthanized to control the spread of the infection. Due to the devastating consequences of tuberculosis for nonhuman primates and associated research projects, special precautions are taken to reduce the risk that employees involved in the use and care of these animals will infect them with *M. tuberculosis*.
   2. If the participant has a history of a previous positive PPD, further skin testing is not performed.
      a. A Tuberculosis (TB) Quiz and Health Survey (see OMS Tuberculosis Surveillance Program) is administered and the completed form is filed in the employee's OMS clinical record.
      b. A chest radiograph is obtained, if the employee's responses to the quiz suggest active pulmonary

tuberculosis or the employee cannot provide documentation of a normal chest radiograph following the discovery of the positive PPD.

c. A chest radiograph is obtained if the employee received inappropriate chemoprophylaxis or treatment.

3. Employees working with nonhuman primates who do not have a history of a prior positive PPD receive a PPD on enrollment. The worker is strongly encouraged to receive a second PPD (two-step) one to two weeks after the initial test.

a. If the first PPD is positive, a medical history is obtained for symptoms suggestive of active pulmonary tuberculosis and a chest radiograph is obtained.

(1) If the individual did not have a documented negative PPD in the preceding 24 months (e.g., the test result does not represent a tuberculin skin test conversion) and there is neither clinical nor radiographic evidence of active pulmonary tuberculosis, the employee is counseled, referred for further care as indicated and cleared for duty.

(2) If the worker had a documented negative PPD in the preceding 24 months and is now PPD reactive (i.e., a converter), the employee is restricted from contact with live nonhuman primates until appropriate medical treatment has been received for at least three days. If the employee is unable to obtain prophylaxis from his/her personal health care provider, OMS may offer prophylaxis.

(3) If there is clinical or radiographic evidence of active pulmonary tuberculosis, the employee is restricted from returning to work. This restriction is not removed until the individual provides documentation establishing that the clinical or radiographic findings can reasonably be attributed to a condition other than active pulmonary tuberculosis. The worker is not cleared to return to the work place until the OMS medical director is confident that the individual does not represent a health risk to others. Continued compliance with treatment is monitored by OMS.

(4) If the medical recommendation is that the employee not work or not work with live nonhuman primates, or not return to work, the

employee, his/her supervisor and the APD for the IC are notified the day the decision is made.

b. If the initial PPD is negative and the second test is positive, the response is indicative of a prior infection (booster phenomenon, amnesic response) and the course of action is as described in Section IX.A.3.a.(1).

c. If both of the PPDs are negative and there are no other medical contraindications, the employee is cleared for work.

4. Evaluation of employees sustaining a potential work place exposure to *M. tuberculosis* is conducted as described in the OMS Tuberculosis Surveillance Program.

B. Rubeola (measles) screening

1. Rubeola is one of the most frequently reported viral diseases of nonhuman primates.

2. Due to the morbidity and mortality associated with rubeola infections in New World primates and immunocompromised macaques, as well as the potential personal and public health consequences associated with rubeola infection, all employees working in rooms containing nonhuman primates must have laboratory evidence of protection to rubeola or receive the measles, mumps, and rubella vaccine.

3. Upon receipt of positive rubeola titer or alternatively two weeks following immunization by OMS, the AESP coordinator issues an AESP Medical Evaluation form (Attachment I) to the employee clearing him/her to work with nonhuman primates. The coordinator also sends a copy of the form to the IC animal program director.

4. If an employee lacks serologic evidence of protection to rubeola and refuses immunization, or if the employee cannot receive the vaccine due to a medical contraindication, the OMS healthcare informs his/her supervisor and the APD for the IC that the worker is not cleared to work with nonhuman primates.

C. Retrovirus testing

1. Human immunodeficiency virus (HIV-1) and human T-cell lymphotropic virus (HTLV I/II). Employees who work with either HIV-1 or HTLV I/II or animals used in research involving these viruses are offered enrollment in the OMS Retrovirus Exposure Surveillance Program (RESP). RESP participants are provided regular serologic testing for retroviruses present in their work areas and for which there is a commercially available laboratory diagnostic test.

2. Simian immunodeficiency virus (SIV)

a. SIV is genetically and antigenically related to HIV-2. SIV infections occur naturally in African Green

monkeys, baboons, sooty mangabeys and chimpanzees. The infection commonly persists without any clinical manifestations. Several species of the genus *Macaca* (e.g. rhesus, cynomolgus) are highly susceptible and die following experimental or colony acquired SIV infection.

b. Testing at the CDC has shown that three of 472 individuals (0.6%) with nonhuman primate contact have antibodies to SIV. These occupationally acquired infections were discovered in 1992 and 1994. PCR testing was transiently positive for one of the workers; however, the virus could not be cultured in any of these cases. To date, each of these workers is asymptomatic and has no demonstrable immune deficiency.

c. Routine serologic testing for SIV/HIV-2 is offered through the RESP for employees using or caring for nonhuman primates that are or may be infected with SIV/HIV-2.

3. Simian type D retroviruses (SRVs)

a. SRVs are a group of closely related viruses that are enzootic in many captive populations of macaques (e.g., rhesus, cynomolgus, pig-tailed, and bonnet monkeys). SRV has been identified as the etiologic agent of an infectious immunodeficiency disease in macaques that resembles infections with HIV-1 in humans.

b. The CDC has reported that two of 398 individuals (0.5%) with occupational contact with nonhuman primates had seroreactivity to SRV antigens. The investigators were unable to detect SRV-infected cells by PCR testing or to culture the virus. Neither worker has symptoms suggestive of an infection with a retrovirus.

c. Because there is no commercially available diagnostic test for SRV, OMS does not provide routine testing for SRV.

4. Simian foamy virus (SFV)

a. SFV has been detected in most nonhuman primate populations. However, nonhuman primates infected with SFV have no clinical evidence of the infection.

b. The CDC has discovered serologic evidence of SFV infection in 13 of 398 individuals (3.3%) who worked with nonhuman primates. PCR testing was positive from several of these workers and the virus was cultured from two individuals. None of those infected has clinical evidence of their infection.

c. Because there is no recognized disease associated with being seropositive to SFV and there is no commercially available diagnostic test for SFV, OMS does not provide routine testing for SFV.

5. OMS provides post-exposure testing for documented exposures to primate retroviruses. This testing is not restricted to commercially available diagnostic tests. OMS also provides chemoprophylaxis when clinically indicated for exposures to primate retroviruses. Additional details are contained in the RESP.

D. B-virus (cercopithecine herpesvirus 1) testing

1. Injuries involving neurologic tissues or either oral, ocular, or genital secretions of rhesus, cynomolgus and other macaques (e.g., pig-tail and stump-tail monkeys) very rarely result in human infection with B-virus. However, due to the extreme morbidity and mortality of this infection in humans, special effort is taken to ensure prompt medical evaluation and first aid following a potential exposure to B-virus.

2. The OMS procedure for Injuries Involving Nonhuman Primate Body Fluids describes the relevant first aid, medical history and clinical specimens needed, and the advice given to the injured worker.

E. Rabies immunization is offered to employees working with nonhuman primates in quarantine (see Section VIII A).

X. Nonhuman Primate Tissue Contact. Employees who work with nonhuman primate tissues may receive the following services, in addition to those listed in Section VII.

A. Periodic PPD testing is encouraged for employees working with non-fixed lung or lymph node tissue as described in Section IX.A.

B. A single tuberculin skin test is offered to employees working with all other nonhuman primate tissue.

1. If the PPD is negative and there are no other medical contraindications, the employee is medically cleared for work and there is no follow-up.

2. If the PPD is positive, the course of action is as described in Section IX.A.3.a.(1) and (3).

XI. Surveillance Recall

A. Employees working with small and large animals are advised at the time of enrollment to return for tetanus boosting ten years from the date of their last booster dose.

B. Employees working with live nonhuman primates or non-fixed lung or lymph nodes from nonhuman primates are reminded by letter (see the Tuberculosis Surveillance Program) to return to OMS as follows:
   1. If the prior PPD was negative, the test is repeated every six months.
   2. If the prior PPD was positive, regardless of whether chemoprophylaxis or treatment was received, the employee will be sent an informational tuberculosis health review annually with a letter asking the employee to call OMS if he or she has any symptoms suggestive of active tuberculosis.

C. If the employee fails to keep the recommended AESP periodic visit, OMS mails another letter two weeks later, reminding them to schedule an appointment for TB surveillance. If the employee does not schedule and keep a follow-up visit within two weeks of the second reminder notice, the employee is listed as noncompliant on the animal surveillance exposure program's report, which is available on-line to the IC APDs and their designees (see Section XIII below).

D. Recall for retrovirus monitoring is described in the RESP.

E. Upon successful completion of the recall visit, the employee is given an AESP Medical Evaluation form (Attachment I) documenting that he/she is participating in the AESP.

XII. Requirements. The mandatory minimum requirements for certification of enrollment and continuing participation in the AESP are as follows:

A. Employees working with small animals
   1. Medical counseling (Section VII A.2).
   2. Tetanus immunization (Section VII A.5).

B. Employees working with large animals
   1. Medical counseling (Section VII A.2).
   2. Tetanus immunization (Section VII A.5).
   3. Rabies immunization, if applicable (Section VIII A).
   4. Serologic testing for toxoplasmosis, if applicable (Section VIII.B).

C. Employees working with live nonhuman primates
   1. Medical counseling (Section VII A.2).
   2. Tetanus immunization (Section VII A.5).
   3. Tuberculosis screening (Section IX.A).
   4. Rubeola serologic evidence of protection or immunization (Section IX.B).

D. Employees working with non-fixed tissue from nonhuman primates
   1. Medical counseling (Section VII A.2)
   2. Baseline tuberculosis screening (Section VII A.3)

XIII. Surveillance Program Report

A. A list of employees enrolled in the AESP is provided to the APDs in their respective areas. The electronic report is a real-time view of the following AESP participant data maintained by OMS:
   1. Name.
   2. Last four digits of the social security number.
   3. Category of animal used or cared for (small, large, NHP or NHP tissue).
   4. Date enrolled.
   5. Recall date for NHP workers.
   6. Compliant or non-compliant status.

B. Each APD reviews the list with supervisors, and contacts OMS with any corrections.

Occupational Medical Service Animal Exposure Surveillance Program (AESP) Medical Evaluation	Date
Employee's Name	SSN (Last 4)
Supervisor's Name	IC
Employee is reporting for	

☐ Enrollment in the AESP ☐ Routine periodic visit

Animal category

☐ Small ☐ Large ☐ Nonhuman primate ☐ Primate non-fixed tissues

Medical Recommendations

☐ The above employee is cleared for contact with the designated animal(s).

☐ The above employee is not cleared for nonhuman primate contact.

Restrictions include: _____

☐ The above student is cleared for contact with the designated animal(s) through _____

☐ Employees working with live nonhuman primates must return for medical evaluation in OMS at regular intervals. This employee must return to OMS in (*month/year*) _____

Note: It is the employee's/student's responsibility to provide this form to the supervisor.

OMS Representative's Signature	Date

NIH 2775 (4/97)

Distribution of copies:
Original-Supervisor
Second-IC Animal Program Director
Third-OMS files
Fourth-Employee

Allergies to Laboratory Animals
A Significant Health Risk

What is an allergy?

An allergy is an exaggerated reaction by the body's immune system to proteins. In the case of allergies to laboratory animals, the proteins most frequently associated with the allergic reactions are found in the animal's urine, saliva, and dander.

What are the symptoms of allergic reactions to laboratory animals and when do they occur?

The earliest symptoms include nasal stuffiness, a "runny" nose, sneezing, red irritated eyes and hives. Symptoms that are particularly troubling are those that suggest the worker is developing asthma. These symptoms include coughing, wheezing and shortness of breath. Asthma resulting from allergic reactions to laboratory animals can result in severe and occasionally disabling breathing problems. Rarely, an employee with allergic symptoms will develop a potentially life-threatening reaction following an animal bite.

Most workers who develop allergic reactions to laboratory animals will do so within the first twelve months of working with them. Infrequently, reactions only occur after working with animals for several years. Initially, the symptoms are present within minutes of the worker's exposure to the animals. Approximately half of allergic workers will have their initial symptoms subside and then recur three or four hours following the exposure.

What laboratory animals are associated with allergic reactions?

Most animals used in research have been identified as the source of workers' allergy symptoms. Because mice and rats are the animals most frequently used in research studies, there are more reports of allergies to rodents than other laboratory animals.

What are the chances that a worker will develop an allergic reaction to laboratory animals?

It has been reported that one out of every three to five individuals who works with laboratory animals will develop allergic symptoms. Further, one in twenty workers with allergies to animal proteins will develop asthma as a result of their contact with laboratory animals.

Are there factors that are associated with an increased risk for developing an allergic reaction to laboratory animals?

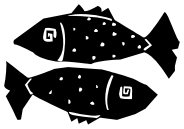
Yes, a history of allergy to other animals (typically cats and dogs) is the best predictor for who will develop an allergy to animals found in research laboratories. Other factors associated with allergic reactions to laboratory animals include the individual's intensity, frequency and route of the exposure to the animals. Activities such as handling animals and cleaning their cages may be associated with an increased risk of exposure to the animal proteins and thereby place the worker at greater risk of developing an allergic reaction. Although workers who have a personal or family history for asthma, seasonal allergies and dermatitis are also at increased risk, individuals with no prior history of allergies and only brief work exposures can also develop allergic reactions to laboratory animals.

What can be done to reduce the chance that a worker will develop an allergic reaction to laboratory animals?

The best approach for reducing the likelihood that a worker will develop an allergic reaction is to eliminate or minimize their exposure to the proteins found in animal urine, saliva and dander. Ideally, this is accomplished by limiting the chances that workers will inhale or have skin contact with animal proteins. In addition to using well-designed air handling and waste management systems in research areas, workers can reduce their risk of exposure by routinely using dust/mist masks, gloves and gowns. If additional respiratory protection is required, the worker should contact the Technical Assistance Section, Division of Occupational and Health Safety at (301) 496-3353.

What should you do if you are concerned that you may have some of the symptoms that suggest an allergy to laboratory animals?

Notify your supervisor of your concern and call the Occupational Medical Service (301) 496-4411 to schedule an appointment for evaluation. A clinician will review your medical and work history and perform a targeted physical exam. Based upon the clinical findings, additional testing may be performed. With early identification of allergic reactions to animals and appropriate treatment, most people can avoid further injury or the development of asthma.



Health Concerns Associated with Aquatic Species (Fish, Sea Urchins, Eels, some Frogs) Contact

Although the risk of infection from marine life is remote, it is recommended that special care be taken when handling these animals, their habitats and equipment. When handling the animals or coming in contact with the tank water, gloves should be worn or a net should be used when it is feasible. Hand washing is an important adjunct to the use of exam gloves for prevention of the spread of infectious organisms or other contaminants to both personnel and animals. And when working with aquatic species, hand washing often becomes a very important adjunct to health care, since some procedures cannot be performed appropriately while wearing exam gloves. For effective hand washing, antimicrobial soaps or alcohol-based hand rubs are recommended for use.

The following symptoms may be related to aquarium exposures:

GI Upset: Aeromonas hydrophilia, Edwardsiella tarda, Giardia species, Pliesiomonas shigelloides, Vibrio species, Yersinia enterocolitica.

Fever: Edwardsiella tarda, Pasteurella maltocida, Yersinia enterocolitica.

Skin Lesions: Listeria monocytogenes, Mycobacterium marinum, Vibrio species.

Cellulitis: Aeromonas hydrophila, Pliesiomonas shigelloides, Streptococcus iniae, Vibrio vulnificans.

Spontaneous Abortion: Listeria monocytogenes.

If you suspect that you have contacted an infection from aquarium animals, contact Occupational Medical Service

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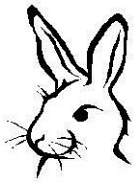
OMS Health Units and Services:

Building 10, Room 6C306	7:30 am – 5:00 pm	M - F	301-496-4411
Building 13, Room G904	7:30 am – 4:00 pm	M, T, W & F	301-496-3164
	7:30 am – 2:30 pm	Th	

Animal Exposure Surveillance Program (AESP): is a service tailored to meet the work-related medical needs of individuals working with laboratory.

Health Concerns Associated with Rodent/Rabbit (Small Animal) Contact



Sprains, strains, bites, and allergies are the most common work related health complaints reported by individuals working with rodents and rabbits (small animals). Of these injuries, allergic reactions to proteins in small animals' urine, saliva, and dander are the greatest potential health risk, because an allergic response may evolve into life-long asthma. Symptoms suggestive of an allergic reaction include: nasal congestion, a runny nose, sneezing, irritated eyes, hives, coughing, wheezing, and shortness of breath. Intense exposure to animal proteins by either inhalation or by direct contact with your skin will increase your risk of developing an allergy to them.

General Guidelines

Safe Work Practices: will markedly reduce your risk of being injured at work. Proper handling and restraint of rabbits and rodents is the single most effective measure in protecting personnel from bites and scratches. Bite protection gloves can be helpful when working with fractious rodent species, and wearing long sleeves while handling rabbits can help in avoiding scratches. You can minimize your exposure to animal proteins by properly utilizing air handling and waste management systems such as biological safety cabinets, filter tops on animal cages, ventilated caging rack systems, and HEPA filtered bedding dump stations. In addition, when working with lab animals, you should use appropriate personal protective equipment (PPE) such as dust/mist masks, gloves and gowns. Properly disposing of PPE, washing your hands and forearms with soap and water, and decontaminating work areas will further reduce the risk of an allergic reaction. Refer to the Laboratory Animal Allergy Prevention Program (LAAPP) for additional detail on recommended safe work practices.

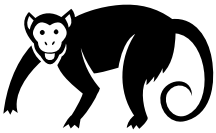
Injuries and illnesses: both Federal and contract workers must report all possible work-related injuries and illnesses to their supervisor and to OMS. Following a bite by a small animal or other injury in which the wound may be contaminated, first aid should be initiated at the work site.

OMS Health Units and Services:

Building 10, Room 6C306	7:30 am – 5:00 pm	M – F	301-496-4411
Building 13, Room G904	7:30 am – 4:00 pm	M, T, W & F	301-496-3164
	7:30 am – 2:30 pm	Th	

Animal Exposure Surveillance Program (AESP): is a service tailored to meet the work-related medical needs of individuals working with laboratory.

Occupational Allergy Clinic: employees with possible work-related allergies may be evaluated by an allergist. If testing reveals an occupational basis for the worker's health concerns, treatment and support with the Workers' Compensation application process is provided.



Health Concerns Associated with Nonhuman Primate Contact

It should not be surprising that, given our many similarities, humans and nonhuman primates (NHPs) are susceptible to similar infectious agents. Because of our differences, the consequences of infection with the same agent often vary considerably. Infection may cause few if any symptoms in one group and may be lethal for the other. There are steps that we can take to minimize the risk for transmitting infections from ourselves to NHPs and from them to us. The following is an overview of potential health hazards associated with NHPs, steps you can take to minimize your risk of injury at work, and what you should do if you are injured at work.

Measles: is caused by a virus which infects both humans and NHPs. It is spread by aerosols and is extremely infectious. Adults who become infected may develop pneumonia, meningitis, and other serious consequences. Some NHPs will die if they are infected. Because of these health risks, all workers who have contact with NHPs must have either lab evidence of protection to measles (a positive measles titer) or documentation of immunization for measles. If the employee has neither, OMS provides both lab testing and immunization.

Tuberculosis: affects both humans and NHPs. This organism is also transmitted by aerosols. Usually transmission is from humans to NHPs. Although infections in humans can be reliably detected and readily treated, the same is not true in NHPs. Diagnosing tuberculosis in NHPs is difficult and there is no effective treatment. Entire colonies of NHPs have been lost due to infections with tuberculosis. As a result, all personnel who work in areas containing NHPs are screened with a skin test for tuberculosis (PPD). Those not already infected are tested every six months to reduce the chance that they will accidentally introduce the infection to NHPs at the NIH. Workers who have been infected are evaluated to make certain that they do not have nor will they be likely to develop active tuberculosis.

Herpes B: (*Cercopithecine herpesvirus*) is the macaque version of the herpes simplex virus. As in humans, once infected the virus takes up residence in the macaque's sensory nerves and occasionally travels down the length of the nerve and is released into the animal's mouth, eyes, or genitals. Usually this occurs without any outward evidence, although the animal may develop tiny blisters in those areas. The blisters may rupture leaving an ulcer that then develops a crust. Transmission to humans has resulted from bites, scratches, and other incidents that expose the worker to the macaque's neurologic tissue or mucous membrane fluids. B virus is not transmitted by exposure to macaque blood. Although human infection with B virus is a very infrequent occurrence, approximately 70% of workers infected with B virus die from complications of their infections. Accidental exposure to macaque neurologic tissues and mucous membrane fluids should be handled as a medical emergency; first aid should be initiated at the workplace; and the incident should be reported promptly to OMS for appropriate care.

Simian Immunodeficiency Virus (SIV): is a retrovirus that occurs in African Green monkeys, baboons, sooty mangabeys, and chimpanzees. Rhesus and other susceptible macaque species develop a clinical syndrome similar to that found in humans infected with human immunodeficiency virus (HIV). It is transmitted by exposures to NHP blood and other body fluids. Since 1993, three workers have developed laboratory evidence of infection with SIV. So far, none of these individuals has developed clinical evidence of disease. So far, none of these individuals has developed either laboratory or clinical evidence of disease. NHP blood, other body fluids, and tissues should be treated as potentially infectious. Exposures to NHP fluids should be properly decontaminated and reported to OMS for further care.

Shigella: is an organism that causes diarrhea in both humans and NHPs. Transmission can be prevented by adherence to standard safety precautions and appropriate hand washing.

General Guidelines

Glove Use and Hand Washing: are critical to the prevention of the spread of infectious organisms or other contaminants to both personnel and animals. Select the ideal glove for your work with the assistance of your supervisor and safety specialist. Regardless of the type of glove selected, be aware that micro-tears in the gloves may compromise the protection they offer. As a result, use the antimicrobial soaps or alcohol-based hand rubs that are provided to further protect you from contaminants. Your safety specialist may recommend additional precautions, based upon a risk assessment of the work you perform.

Injuries: All animal procedures should be performed by properly trained personnel who follow their facility's standard operating procedures. By employing safe work practices and utilizing appropriate personal protective equipment, workers minimize the likelihood that they will be bitten, scratched, and or exposed to animal body fluids and tissues. Despite these precautions, accidental exposures still happen. When an injury does occur, the worker (both Federal and contracted) must promptly initiate appropriate first aid, notify the supervisor, and promptly report the incident to OMS.

First aid: should be initiated at the work site

- Contaminated skin and wounds should be washed thoroughly with soap and water for 15 minutes.
- Contaminated eyes and mucous membranes should be irrigated for 15 minutes using normal saline or water.

Illnesses: Both Federal and contract workers must report to OMS for all illnesses (for example: musculoskeletal, gastrointestinal, respiratory, neurological, or skin-related) that they suspect may be caused by the work they perform or animals with which they have contact.

OMS Health Units and Services:

Building 10, Room 6C306	7:30 am – 5:00 pm	M – F	301-496-4411
Building 13, Room G904	7:30 am – 4:00 pm	M, T, W and F	301-496-3164
	7:30 am – 2:30 pm	Th	

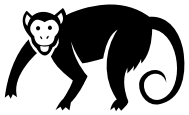
Emergency Medical Care after Regular Clinic Hours: Exposures to NHP body fluids should be treated as an emergency. If the injury occurs after regular business hours, the injured worker should page the on-call OMS by calling: 301-496-1211.

Animal Exposure Surveillance Program (AESP): is a service tailored to meet the work-related medical needs of individuals working with laboratory animals and NHP tissues. Services include: lab testing for measles, measles and tetanus immunizations, PPD skin testing, and serum storage.

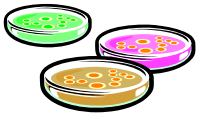
Retrovirus Exposure Surveillance Program (RESP): provides periodic laboratory testing for primate retroviruses (for example SIV and HIV) that may be present in the workplace and for which there is a commercially available screening test. Participation in this program is voluntary.

References:

1. Cohen, JI, et al. (2002). Recommendations for Prevention of and Therapy for Exposure to B Virus. Clinical Infectious Diseases; 35:1191-1203.
2. Morbidity and Mortality Weekly Report (2002). "Guideline for Hand Hygiene in Health Care Settings". October 25, 2002, 51;(RR16),1-44.



Health Concerns Associated with Nonhuman Primate Tissues



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Tuberculosis: is an infectious disease caused by *M. tuberculosis* that affects both humans and NHPs. *M. tuberculosis* typically is transmitted by aerosols; however, it can also be transmitted by direct inoculation. If you work with NHP lungs or lymph nodes, you may be at risk for infection with *M. tuberculosis.* If you work with NHP lungs or lymph nodes, the Occupational Medical Service (OMS) recommends that you receive a PPD skin test every year.

Herpes B: (Cercopithecine Herpesvirus) is the NHP version of herpes simplex virus that occurs in macaques. As in humans, once infected the virus takes up residence in the macaque's sensory nerves and occasionally travels down the length of the nerve and is released into the animal's mouth, eyes, or genitals. Transmission to humans has resulted from bites, scratches, and other incidents that expose the worker to the macaque's neurologic tissue or mucous membrane fluids. B virus is not transmitted by exposure to macaque blood. Although human infection with B virus is a very infrequent occurrence, approximately 70% of workers infected with B virus died from complications of their infections. Accidental exposure to either should be handle as a medical emergency first aid should be initiated at the workplace and the incident should be reported promptly to OMS for appropriate care.

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Injuries: Non-fixed animal tissues and body fluids should be handled as potentially infectious. Gloves should be worn when handling them and eye protection should be worn when splashes are of concern. Despite these precautions, accidental exposures still happen. When an injury involving a NHP tissue or fluid occurs, it should be treated as a medical emergency. The worker (both Federal and contracted) must initiate appropriate first aid quickly, notify the supervisor, and promptly report the incident to OMS.

First aid: should be initiated at the work site

- Contaminated skin and wounds should be washed thoroughly with soap and water for 15 minutes.
- Contaminated eyes and mucous membranes should be irrigated for 15 minutes using normal saline or water.

Illnesses: Federal and contract workers must also report all illnesses (for example: musculoskeletal, gastrointestinal, respiratory, neurological, or skin-related) that they suspect may be caused by the work they perform to OMS.

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References:

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2. Fox JG, Anderson LC, Loew FM, Quimby FC, eds. (2002). Laboratory Animal Medicine, 2nd ed.
3. Morbidity and Mortality Weekly Report (2002). "Guideline for Hand Hygiene in Health Care Settings". October 25, 2002, 51;(RR16),1-44.
4. National Research Council (1997). Occupational Health and Safety in the Care and Use of Research Animals. Institute of Laboratory Animal Resources, Commission on Life Sciences.

Attachment VII

ANIMAL EXPOSURE SURVEILLIANCE PROGRAM (AESP)

Program	Mandatory	Elective	Follow-up
Small Animals Rodents,Rabbits,Guinea Pigs, Fish, Fruitflies	Medical counseling including:		
	1. Importance of universal precautions 2. Relevant zoonoses and informational handouts. 3. Medical evaluation and treatment of occupational injuries and illnesses. 4. Work related allergy clinic.	PPD Save serum Tetanus booster every 10 years	None
Large Animals Dogs, Cats, Sheep, Cattle, Pigs	All of the above and:		
	1. Rabies immunization, if warranted 2. Toxo titer, if the employee works with cats and is female of child bearing capacity.	PPD Save serum Tetanus booster every 10 years	None
Nonhuman Primates Working with live NHP or breathing their air	Medical counseling as above under small animals		
	1. PPD; If PPD is positive, quiz and CXR if clinically indicated 2. Positive rubeola titer, if negative – receipt of the MMR	#2 PPD strongly encouraged Save serum Tetanus booster every 10 years	PPD every 6 months unless positive